AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method of designing a synthetic biodegradable/bioresorbable tissue augmentation/reconstruction device, said method comprising:

creating a material density distribution ~~within a~~ map based on an initial device design shape, said material density distribution map having [[for]] discrete points ~~during a material degradation lifecycle~~;

determining a numerical weighting factor based on a predicted time-based elastic or molecular weight degradation pattern;

weighting said material density distribution map using [[a]] said numerical weighting factor to determine a weighted density distribution map; and

using said weight density distribution map to determine a material reinforcement of said device to create a final device design shape such that said device will retain predetermined structural properties during [[said]] a material degradation lifecycle.

2. (Currently Amended) The method according to Claim 1 wherein said material density distribution map is ~~creating~~ created using a technique chosen from the group consisting essentially of topology optimization, microstructure topology optimization, restricted topology optimization, image-based design, and computer-aided design techniques.

3. (Currently Amended) The method of Claim ~~2 wherein said~~ 1 wherein said material density distribution map is created using topology optimization ~~includes~~ having an algorithm employed to define said material density distribution map at predetermined time points during said material degradation lifecycle.

4. (Currently Amended) The method of Claim ~~2 wherein said~~ 1 wherein said material density distribution map is created using image-based design ~~includes~~ defining said material density distribution map at predetermined time points during said material degradation lifecycle.

5. (Currently Amended) The method of Claim ~~2 wherein said~~ 1 wherein said material density distribution map is created using general computer aided design techniques include defining said material density distribution map at predetermined time points during said material degradation lifecycle.

6. (Original) The method according to Claim 1 wherein said weighting factor is chosen from the group consistently essentially of a linear weighting factor, a nonlinear weighting factor, a time past degradation factor, and a ratio of a degraded material property to initial material property.

7. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded modulus to an initial modulus.

8. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded strength to an initial strength.

9. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded thermal conductivity to an initial thermal conductivity.

10. (Original) The method according to Claim 6 wherein said ratio of a degraded material property to initial material property includes a ratio of a degraded electrical conductivity to an initial electrical conductivity.

11. (Currently Amended) The method according to Claim 1, further comprising:

superposing said material density distribution map at predetermined time points using both time, degraded base stiffness, and said weighting factor.

12. (Currently Amended) The method according to Claim 1, further comprising:

superposing said material density distribution map at predetermined time points using density at a global anatomic level.

13. (Currently Amended) The method according to Claim 12, further comprising:

superposing said material density distribution map at predetermined time points using density at a physical size smaller than said global anatomic level.

14. (Currently Amended) The method according to Claim 1 wherein said weighting said material density distribution map using a weighting factor to determine a weighted density further includes employing material degradation kinetics to enhance said material density distribution map.

15. (Original) The method according to Claim 14 wherein said employing material degradation kinetics further comprises employing one chosen from the group consisting essentially of polylactic acid, polyglycolic acid, polyanhdyride, polycaprolactone, tri-calcium phosphate, and hydrogels.

16. (Original) A method of manufacturing a biodegradable/bioresorbable tissue augmentation/reconstruction device, said method comprising:

dividing the device into elements having a predicted material density between 0 and 1;

weighting each predicted material density by a predetermined degradation profile to define a weighted material density, said degradation profile being unique to a material used; and

calculating a material weight in each of said element by applying a time lasting factor and a degrading modulus factor such that high load bearing regions within said device are reinforced to compensate for subsequent stiffness degradation due to bulk erosion of said device.

17. (Original) The method according to Claim 16, further comprising:

converting said weighted material density to surface representation for manufacture.

18. (Original) The method according to Claim 17 wherein said converting said weighted material density to surface representation for manufacture includes converting said weighted material density to a STL surface representation.

19. (Original) The method according to Claim 17 wherein said converting said weighted material density to surface representation for manufacture includes converting said weighted material density to a Computer Aided Design (CAD) surface.

20. (Original) The method according to Claim 17 wherein said converting said weighted material density to surface representation for manufacture includes converting said weighted material density to a wireframe representation.